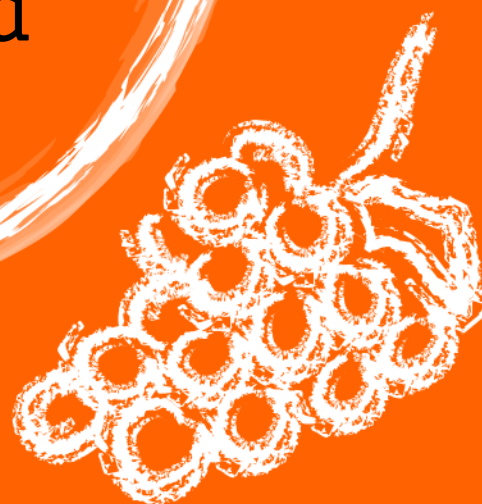
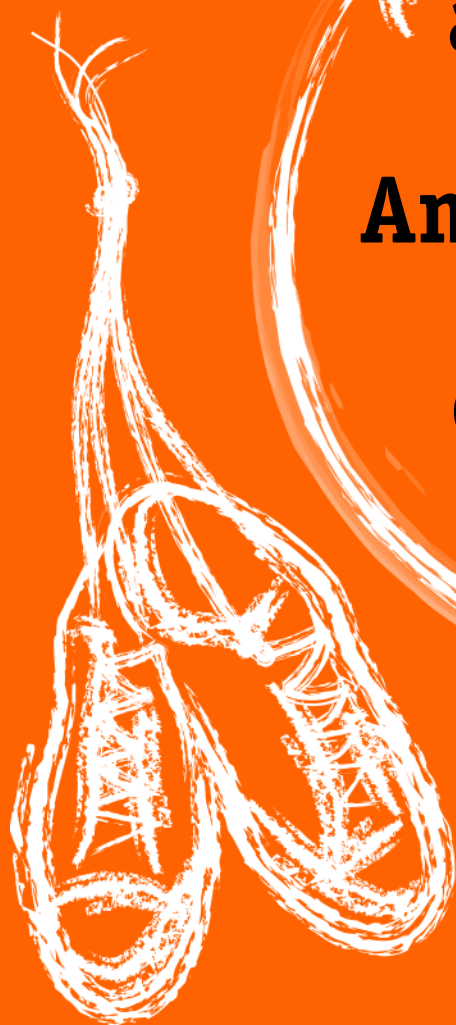
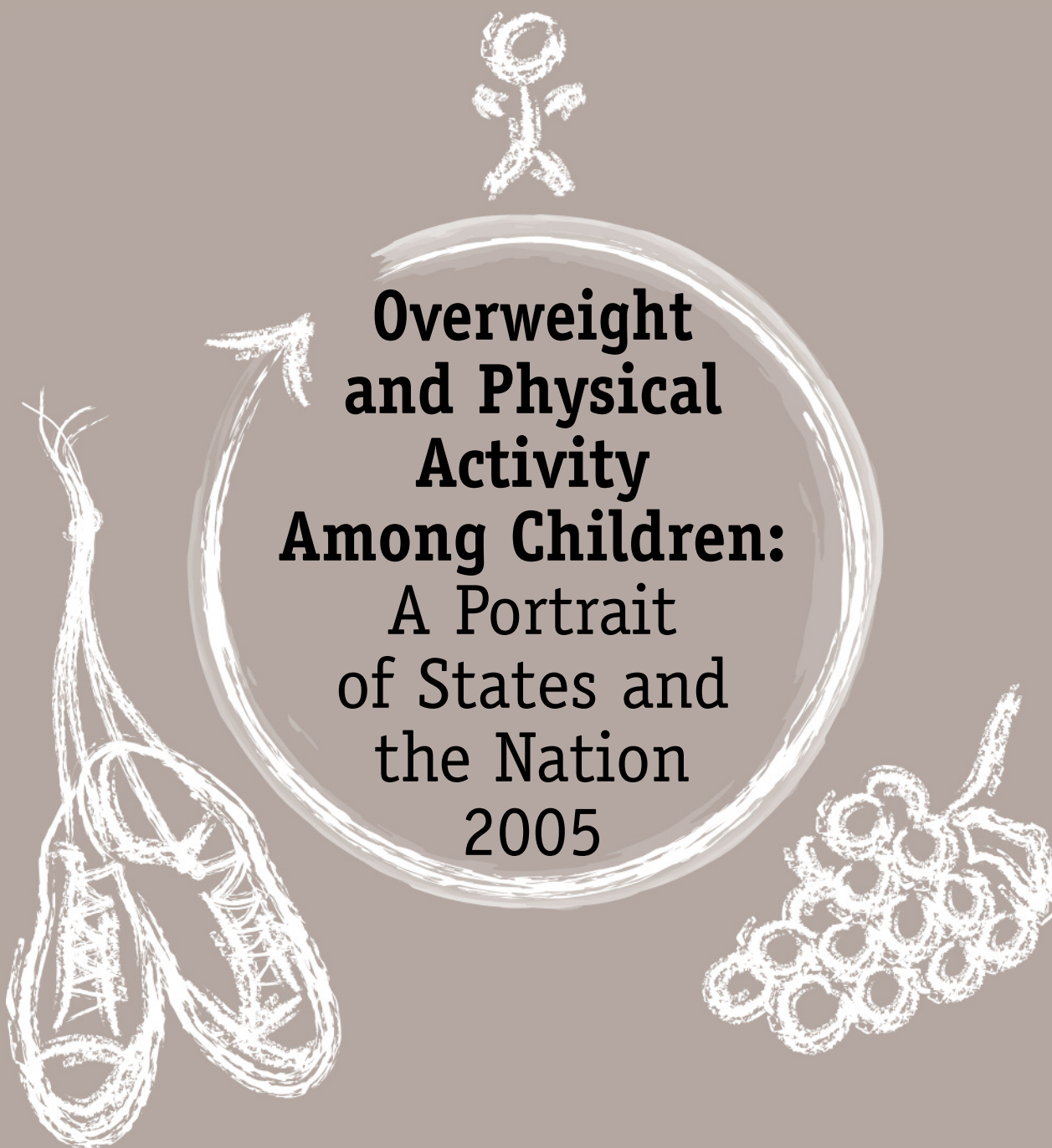




**Overweight  
and Physical  
Activity  
Among Children:  
A Portrait  
of States and  
the Nation  
2005**







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The publication is also available online at  
[www.mchb.hrsa.gov](http://www.mchb.hrsa.gov) and [www.cdc.gov/nchs/slats.htm](http://www.cdc.gov/nchs/slats.htm)





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DEPARTMENT OF HEALTH & HUMAN SERVICES

Health Resources and Services  
Administration

Rockville MD 20857

Dear Colleagues:

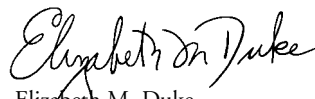
The Health Resources and Services Administration is pleased to present this chartbook highlighting the major findings of the National Survey of Children's Health on overweight and physical activity among children. This survey, the first of its kind, presents national- and state-level information on the health and well-being of children, their families and neighborhood environments, and their use of health services.

The survey includes many positive findings about weight and physical activity among children aged 10 to 17 years. According to calculations based on parent-reported height and weight, 85 percent of children are not considered overweight. The National Survey of Children's Health also found that most are physically active on three or more days per week, and over half participate in sports teams or take sports lessons.

Despite these positive findings, 15 percent of children were found to be overweight and almost 30 percent do not exercise on three or more days per week. The survey also found that children in certain populations are more likely to be overweight or not physically active. For instance, Black and Hispanic children are more likely to be overweight and are less likely to be physically active than children of other racial and ethnic groups. Considering the established importance of healthy weight and physical activity and the link between the two, the results of this survey have important implications for the future health of today's children and the policies that affect them.

We at HRSA hope that these findings provide useful information and are helpful in your efforts to promote healthy weight and physical activity among America's youth.

Sincerely,



Elizabeth M. Duke  
Administrator



## Introduction

The National Survey of Children's Health (NSCH) was designed to measure the health and well-being of children from birth to age 17 in the United States while taking into account the environment in which they grow and develop. Conducted for the first time in 2003, the survey collected information from parents about their children's health, including oral, physical and mental health, health care utilization and insurance status, and social well-being. Aspects of the child's environment that were assessed in the survey include family structure, poverty level, parental health and habits, and community surroundings. The survey was supported and developed by the U.S. Department of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Bureau and was conducted by the Centers for Disease Control and Prevention, National Center for Health Statistics.

Two important aspects of children's health measured in the survey were overweight, which is calculated from the parent-reported height and weight, and physical activity. Healthy body weight and regular physical activity are critically important to overall health and well-being both during childhood and later in life. Risk factors for heart disease, such as high cholesterol and high blood pressure, occur more frequently among overweight children than those with a healthier weight. Overweight is also closely linked to type-2 diabetes and can have emotional effects such as poor self-esteem and depression. Furthermore, it is estimated that overweight adolescents have a 70 percent chance of going on to become overweight or

obese adults; this rate is even higher among children with overweight or obese parents.<sup>1</sup> Overweight and obesity and their associated health problems create direct and indirect costs that have significant economic impact on the health care system of the United States.<sup>2</sup> For more information on weight categories for children and on how to determine your child's weight category, please see page 7.

Overweight and physical activity are inextricably linked. Overweight is caused by an energy imbalance of more calories consumed than used, and physical activity plays a key role in maintaining an appropriate energy balance because it helps burn calories that are consumed in excess. Physical activity does more than regulate weight; it also reduces the risk for certain cancers, diabetes, and high blood pressure and contributes to healthy bones and muscles.<sup>3</sup> Therefore, the International Consensus conference on Physical Activity recommends that adolescents (aged 11 to 21) be physically active every day in the course of their daily activities and that they engage in moderate to vigorous physical activity 3 or more times per week.<sup>4</sup>

The NSCH measures overweight in children through parent-reported height and weight and measures physical activity through parent reports of exercise. Overweight means that the child's Body Mass Index (BMI), calculated from the parent-reported height and weight, is at or above the 95th percentile for sex and age.<sup>5</sup> BMI classifications for children are different than BMI classifications for adults; the term "obese" should generally not apply to children less than two years of age. When a child

is considered to be overweight, this means that at least 95 percent of other children of the same sex and age have lower BMIs, according to nationally representative data on height and weight that were measured by health professionals in other research studies. It should be noted that some parents may not be able to accurately report their children's height or weight, leading to inaccurate BMI calculations. For example, if a parent underestimates a child's height or overestimates a child's weight, the resulting BMI would be too high. Although the NSCH collected data on children from birth to age 17, overweight and physical activity are only reported here among children ages 10 to 17 because parent-reported height and weight are more reliable for this age group than they are for younger children. For more information on how to calculate BMI, please see page 7.

Overall, the NSCH found that 14.8 percent of 10- to 17-year-olds are considered overweight using parent-reported height and weight. Males are more likely than females to be overweight (18.1 percent versus 11.5 percent). Also, the occurrence of overweight declines with age: 21.9 percent of 10- to 11-year-olds are overweight compared to 10.7 percent of 15- to 17-year-olds.

Overweight varies by a number of other factors, including race and ethnicity, family income, and family structure. Black children have the highest rate of overweight, followed by Hispanic children; White children have the lowest overweight rate. As family income rises, the rate of overweight falls: 22.4 percent of children with family incomes below 100 percent of the Federal poverty level (FPL)



are overweight, compared to 9.1 percent of children with family incomes of 400 percent of FPL and above. Children living with two parents, either biological or adoptive, are least likely to be overweight while children living with a single mother are most likely.

Results of the NSCH confirm that levels of physical activity and sports participation appear to be linked to overweight in children. Among children who are physically active on 3 or more days, 13.8 percent are overweight; this is compared to 17.1 percent of children who are active on fewer than 3 days per week. In this case, physical activity is defined as activity that lasts at least 20 minutes and causes sweating and hard breathing. Similarly, 12.6 percent of children who participate in sports are overweight, compared to 18.1 percent of children who do not participate. Parental exercise also appears to be related to overweight. Almost three-quarters of 10- to 17-year-olds have at least one parent who exercises regularly. Of children with at least one parent who exercises, 13.6 percent are overweight; this is compared to 17.0 percent of children who do not have a parent who exercises regularly.

According to parent reports of exercise, almost three-quarters of 10- to 17-year-olds are physically active 3 or more days per week. Males are more likely to be physically active on 3 or more days per week than females. However, regular physical activity decreases with age among both males and females. The proportion of children who exercise regularly also increases with family income: 65.6 percent of children with family incomes below 100 percent of FPL are active 3 or more

days per week, compared to 75.0 percent of children with family incomes 400 percent of FPL and above. Black and Hispanic children are least likely to be physically active on 3 or more days a week, while children of "other" racial and ethnic origins (including Asian/Pacific Islander and American Indian/Alaska Native children) were most likely to exercise regularly.

Over half (58.6 percent) of 10- to 17-year olds participate in sports teams, including teams run by school or community groups, or take sports lessons, which can be a source of physical activity. Trends toward participation on sports teams are similar to those regarding physical activity as mentioned above, with males more likely to participate than females, and younger children more likely to participate than older children. Children who attend private school are most likely to participate on sports teams or take lessons (74.2 percent), followed by those in public school (57.5 percent); children who are home-schooled are least likely to participate in sports (45.0 percent).

Regular physical activity and participation in sports are associated with neighborhood safety. Children who live in a neighborhood that is described by the parent as usually or always safe have higher rates of regular physical activity than those children who live in neighborhoods not considered safe by the parent (72.8 percent versus 63.8 percent). Participation in sports teams or lessons show the same association with neighborhood safety: 60.9 percent of children who live in a safe neighborhood participate in sports compared to 47.2 percent of children who live in a neighborhood that is not considered safe.

Despite the recognized importance of a healthy weight and regular physical activity, this survey shows that some children are more likely than others to get regular exercise and maintain a healthy weight. The survey also demonstrates the importance of parents participating in regular physical activity to demonstrate healthy habits for their children. It is hoped that these findings can help policymakers, State and local health officials, other health professionals, and families continue to support those children who are already demonstrating healthy habits, and to encourage those children who are at risk to further their physical activity, make healthy food choices, and achieve a healthy weight.

The Technical Appendix of this chartbook presents important information about the survey sample and methodology. For more detailed analyses of the survey results, the Data Resource Center on Child and Adolescent Health (DRC) Web site provides online access to the survey data. The interactive data query feature allows users to create their own customized tables and to compare survey results at the National and State level, and by relevant subgroups such as age, race and ethnicity, and family income. Sponsored by the Health Resources and Services Administration's Maternal and Child Health Bureau, the Web site for the DRC is: [www.nschdata.org](http://www.nschdata.org)

More complex analyses of the data can be conducted using the public use data set available from the National Center for Health Statistics at: [www.cdc.gov/nchs/about/major/slits/nsch.htm](http://www.cdc.gov/nchs/about/major/slits/nsch.htm)





## Calculating Body Mass Index

The Body Mass Index (BMI) is a number that shows body weight adjusted for height and can be calculated using the following formulas:

**English Formula**      Weight in pounds  $\div$  Height in inches  $\div$  Height in inches  $\times$  703 = BMI

**Metric Formula**      Weight in kilograms  $\div$  Height in meters  $\div$  Height in meters = BMI

BMI for children, also referred to as BMI-for-age, is gender and age specific. BMI-for-age is plotted on gender-specific growth charts, available from the CDC's National Center for Health Statistics at [www.cdc.gov/growthcharts/](http://www.cdc.gov/growthcharts/), which contain a series of percentile curves. The table below shows weight categories for children based on their BMI-for-age percentile.

## Weight Categories for Children

<b>Underweight</b>	BMI-for-age < 5th percentile
<b>Normal</b>	BMI-for-age 5th percentile to < 85th percentile
<b>At risk of overweight</b>	BMI-for-age 85th percentile to < 95th percentile
<b>Overweight</b>	BMI-for-age $\geq$ 95th percentile

## Determine Your Child's Weight Category

1. Calculate your child's BMI using one of the formulas shown above. BMI can also be determined by looking it up on the CDC Table for Calculated Body Mass Index Values for Selected Heights and Weights for Ages 2 to 20 in which BMI has been calculated.
2. Plot your child's BMI on the BMI-for-age chart to determine his or her percentile-range.  
**Boys (Ages 2 to 20)**      [www.cdc.gov/nchs/data/nhanes/growthcharts/set2/chart%2015.pdf](http://www.cdc.gov/nchs/data/nhanes/growthcharts/set2/chart%2015.pdf)  
**Girls (Ages 2 to 20)**      [www.cdc.gov/nchs/data/nhanes/growthcharts/set1/chart16.pdf](http://www.cdc.gov/nchs/data/nhanes/growthcharts/set1/chart16.pdf)
3. Use the table shown above to determine the weight category.

More information on BMI is available through the Centers for Disease Control and Prevention Web site: [www.cdc.gov/nccdphp/dnpa/bmi/index.htm](http://www.cdc.gov/nccdphp/dnpa/bmi/index.htm)